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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,717	12/21/2001	Edward W. Taylor JR.	NCI 8062US	5796
1688	7590	07/28/2004	EXAMINER	
POLSTER, LIEDER, WOODRUFF & LUCCHESI 12412 POWERSCOURT DRIVE SUITE 200 ST. LOUIS, MO 63131-3615			DICUS, TAMRA	
		ART UNIT		PAPER NUMBER
				1774

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/036,717	EDWARD W. TAYLOR JR
	Examiner	Art Unit
	Tamra L. Dicus	1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address.
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 March 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 and 45-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-23 and 45-61 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

All of the rejections/objections are withdrawn due to Applicant's amendments except for those that applied to claims 14-23. Cancellation of claims 24-44 are acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-7, 9-13, 45-49, 52-53, 55-56 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,094,887 to Bagdasarian in view of USPN 5,356,568 to Levine.

Bagdasarian teaches a method of applying an ablative material over substrates subjected to high heat at col. 1, lines 20-43. At col. 4, lines 5-10, a primer 14 is coated over (instant claim 46) substrate 16 to improve the adhesion between the substrate and ablative layer 10. See the Figure. Further Bagdasarian teaches ablative coating 10 can be sprayed in a number of layers to achieve significant thickness (col. 4, lines 19-22) hence providing an upper and lower ablative type coating and topcoat as the Figure shows and as Bagdasarian explains at col. 4, lines 30-35 the functionality of coating 10 as a topcoat (finish). Bagdasarian teaches application of an ablative coating provides further thermal protection at col. 1, lines 55-57. At col. 4, lines 14-16, the ablative coating has a

thickness of up to 3.8 mm (falling within Applicant's range per instant claim 9-10 and 55). Bagdasarian teaches primer layer 14 to improve the adhesion of ablative coating (per instant claim 46). The following properties or functions would be expected since the same material is used as Applicant claims:

- a. The ablative material swells to form an open cell matrix... (instant claims 1 and 55)
- b. The system protects protection for hyperthermal conditions... (instant claims 1 and 55)
- c. The ablative material swells by about 10%-100%... (instant claims 49 and 53)
- d. The active fire-protective material swells when exposed... (instant claims 52)
- e. The ablative material swells by about 10%-100%... (instant claim 53)
- f. The fillers increase reradiation of heat (instant claim 6)
- g. Changing from solid to gas at a hyperthermal temperature to which the composition may be subjected (instant claim 48)

Addressing claims 7 and 55, the process limitations that the system "is capable of protecting against jet fires...", is not dispositive of the issue of patentability of the present article claims. It has been held that an element that is "being able to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

Bagdasarian does not expressly disclose teaching the lower active fire protective material and upper ablative material having the composition as follows: *Ablative layer:*

35-65% epoxy, 5-30% gas former (blowing agent), or 10-40% filler or *Active fire protective layer*: 30-70 wt% epoxy, 20-50% gas former (blowing agent), or less filler (instant claims 48, 55) or glass refractory filler (instant claim 5). Levine teaches a coating that is active and ablative having the following composition: blowing agents may be added between 6 and 12%, resins between 9 and 14%, and inorganic glass beads (refractory) between 3.9-10.3%, all falling within Applicant's range. The resins may be any film forming, halogenated rubber or vinyl polymers. See Levine col. 3, lines 10-33 and col. 4, lines 24-25. It would have been obvious to one of ordinary skill in the art to modify the substrate of Bagdasarian to include a composition as claimed because Levine teaches the same materials and weight percentage ranges that fall within Applicant's claimed range are conventionally employed for active and ablative coatings (col. 3, lines 10-33 and col. 4, lines 24-25 of Levine). Because Levine teaches a range of gas formers and fillers, one skilled in the art would be apprised to pick any percentage between the range of Levine so that the upper layer differs in using less gas formers and more fillers than the lower layer as required by claim 55. Further, the claimed upper layer and lower layer have similar compositions with overlapping ranges taught by Levine, duplication of such composition to provide an upper and lower layer is not dispositive to patentability as the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. Further regarding the thickness of the upper and lower layers ranging between 1 and 25 mm of instant claims 11-13, 55 and 61, because Bagdasarian teaches spray coating ablative coating up to 3.8 mm thick (col. 4, line 16), all thickness ranges claimed fall within Applicant's range, and Levine teaches the aforementioned

composition, one skilled in the art would be apprised to conventionally produce the claimed range thickness for either layer.

Claims 3-4, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,094,887 to Bagdasarian in view of USPN 5,356,568 to Levine, as applied to claim 1 above, and further in view of USPN 4,216136 to Stayner.

Bagdasarian is relied upon above. Bagdasarian does not teach adding specific filler percentages from 15-20 or at least 25 wt% as instant claims 3-4, and 54 and the filler glass. However, Stayner teaches fire retardant resin compositions (equivalent to ablative material) where glass fillers are added in the range from 1-30% at col. 2, lines 1-5, falling in Applicant's range. It would have been obvious to one of ordinary skill in the art to modify the substrate of Bagdasarian to include filler percentages as claimed since Stayner teaches it is conventional to add as cited above.

Claims 3-4, 8, 50-51, 54, and 60 and are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,094,887 to Bagdasarian in view of USPN 5,356,568 to Levine, as applied to claims 1 and 55 above, and further in view of USPN 4,493,945 to Feldman.

Bagdasarian is relied upon above. Bagdasarian does not teach a mesh or fabric or metal mesh or graphite fabric (instant claims 8, 50 and 60). Feldman teaches a thermal protective system that comprises an enveloped active thermal protective material such as intumescence materials (active fire protective/ablative material). Embedding coating material in mesh is also taught. See col. 6, lines 60-68, col. 2, lines 46-68 and col. 1, lines 35-40. Using graphite cloth is taught at col. 2, lines 46-50 and col. 3, lines 35-39.

Metal mesh is also taught in Example 2. It would have been obvious to one of ordinary skill in the art to modify the substrate of Bagdasarian to include graphite cloth because it is highly flexible and used as reinforcement as Feldman teaches at col. 4, line 45 and line 58, metal mesh as an alternative reinforcement in Examples 1 and 2, and embedding mesh in a similar epoxy-based active coating (col. 5, lines 5-25) because Feldman teaches embedding provides optimal use in a tube (col. 6, lines 14-20) and a lighter more efficient structure (col. 3, lines 35-43). Feldman also teaches a primer layer 103 in Figure 1.

Claims 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,094,887 to Bagdasarian in view of USPN 5,356,568 to Levine, as applied to claim 55 above, and further in view of USPN 3,991,011 to Marciniak et al.

Bagdasarian nor Levine teach the specific resin epoxy as required in instant claim 57, or flexibilizing agent such as polysulfide. Marciniak teaches epoxy and polysulfides are conventional equivalents for use in fire retardant compositions and coatings (col. 3, lines 28, 36, and 49-50 and col. 4, lines 1-30). It would have been obvious to one of ordinary skill in the art to modify the ablative substrate of Bagdasarian to include epoxy and polysulfides in either or both layers as Marciniak teaches the aforesaid resins are conventional equivalents used in fire retardant compositions and coatings (col. 3, lines 28, 36, and 49-50 and col. 4, lines 1-30).

Claims 14, and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,265,953 to Close in view of USPN 5,356,568 to Levine.

Close teaches an intumescent stressed skin composite material that comprises a lower intumescent material (equivalent to active fire protective material) and an upper

ablative material. See Figure 5. Close provides a substrate of metal foils or mesh including glass or ceramic fibers or fabrics is used (col. 2, lines 3-20).

The exposure of heat is to the material is taught. The following properties or functions would be expected since similar material is used as Applicant claims:

- h. The ablative material forms an open cell matrix... (instant claim 1)
- i. The system protects protection for hyperthermal conditions... (instant claim 1)
- j. The ablative material swells by about 10%-100%... (instant claim 49)
- k. The active fire-protective material swells when exposed... (instant claim 52)
- l. The ablative material swells by about 10%-100%...(instant claim 53)

Close is silent to the percent refractory fillers of 7% included in instant claim 14. However, Levine teaches intumescent heat-and fire-resistant composition and substrate coated comprising up to 10.3% inorganic ceramic fibers (falling in Applicant's range) in the intumescent coating (see patented claim 5). Hence, it would have been obvious to one of ordinary skill in the art to modify the composite of Close to further include ceramic fillers of 7% since Levine teaches a conventional percentage of ceramic added to intumescent coatings as cited above.

The process limitation, that the system "is capable of protecting against jet fires...", is not dispositive of the issue of patentability of the present article claims (instant claim 7).

Regarding claims 14 and 17, the process limitation that the system is “capable of protecting a substrate from a jet fire/against jet fires”, is not dispositive of the issue of patentability of the present article claims.

Regarding the thickness Close does not state the thicknesses of the upper and lower layers as recited in instant claims 18-23. However, it would have been obvious to one of ordinary skill in the art to produce thicknesses above 1 mm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,265,953 to Close in view of USPN 5,356,568 to Levine and further in view of USPN 4,216136 to Stayner.

Close essentially teaches the claimed invention, as cited above, but is silent to adding specific filler percentages from 7 –25% as instant claims 15 and the filler glass, graphite, or ceramic of claim 16. However, Stayner teaches fire retardant resin compositions (equivalent to ablative material) where glass fillers are added in the range from 1-30% at col. 2, lines 1-5, falling in Applicant’s range. It would have been obvious to one of ordinary skill in the art to modify the composite of Close to further include filler percentages and glass filler since Stayner teaches it is conventional to add as cited above.

Response to Arguments

Applicant's arguments filed 03-05-04 have been fully considered but they are not persuasive.

Applicant argues the prior art references of Close, Bagdasarian, Levine, and Strayner do not teach when exposed to fire or other hyperthermal condition, the swelling to form open cell matrix and does not consider Bagdasarian to disclose any of such characteristics further including capability of protecting against jet fire or swelling to between 10-100%. Applicant argues Bagdasarian does not suggest any reason to combine it with another type of thermal protective coating. If Applicant insists that the polymeric coating as provided by the combinations of prior art cited above is not inherent, the Applicant is invited to provide objective evidence such as comparative test results that would disprove the evidence provided herein. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Applicant's claimed material is the same material as Bagdasarian and Levine teach and thus would expect to exhibit the same functionality the material provides. Now, because of the amendment to include polymeric coatings and the composition as now amended claim 55 recites, Bagdasarian is used as the primary reference to teach a similar structure and Levine is used to teach the suggestion and motivation to include the thermal protective ablative and active materials as required by the new and amended claims. Levine was used to teach the composition before and is still used now as it teaches the ranges for fire protective type coatings as set forth above. Feldman is still used despite Applicant's arguments to not teaching an ablative layer over an active material because Feldman teaches reinforcements of mesh and metal in a similar epoxy ablative/active material with the required structure as claimed. Applicant's active material and ablative material merely differ in a lower percentage of inorganic filler such

as the refractory glass, which Strayner teaches using the lower percentage such as 1 wt% and up to 20 wt% and Levine teaches between 3.9 and 10.3 wt%, which both ranges cover Applicants claimed ranges as set forth above.

Applicant also argues Bagdasarian including a cork flour resin filler, however, such teaching does not teach away from the instant claims as the composition is suggested by Levine. Applicant may not have considered the rest of the evidence that shows the use of ablative coating of polymers and the multilayer structure the coatings provide. The Applicant has not persuasively argued. Hence the references are still used for reasons of record and as set forth above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamra L. Dicus
Examiner
Art Unit 1774

July 19, 2004

Bruce Hess

S. HAMILTON HESS
PRIMARY EXAMINER